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THE ANTHROPOLOGY OF CALIFORNIA[1]

FOR many years California was among the regions of North America of which anthropologists knew least. The early traveler touched it, the missionary occasionally left a valuable but fragmentary record, and the resident at times described the native people who were thrown under his observation. But the anthropologist and the trained investigator sought other fields of exploration, and the fact that extensive archeological collections had been formed from one restricted region contributed very little to a knowledge of the general anthropology of the state. Of recent years these conditions have been entirely altered. Several institutions have formed systematic collections or carried on researches, until now the anthropology of the region is nearly as well known as that of most parts of the continent, and certainly presents less obscurities than some. It seems fitting, therefore, to undertake at this time a review of the principal results of study, and of the new problems that these results inevitably open up. It might seem that the student of aboriginal people should be little concerned with the arbitrary limits of a modern political division such as the present state of California. As a fact, however, these limits coincide so nearly with the natural physiographical and ethnographical boundaries, that the artificiality of such a limitation, in an

[1] Address of the retiring vice-president of Section H of the American Association for the Advancement of Science, at the Chicago meeting, 1907–8.

anthropological consideration, is apparent rather than real.

The anthropologist needs no justification for directing his attention first to language. Not only is language recognized as the necessary means to a really exact understanding of the life of any people; it is also the most generally useful instrument of anthropological classification, and one of the aids to historical knowledge which is at times of the most fruitful service when all other methods, even archeology, fail. Particularly in a region like California, where the multiplicity of languages is so marked, and where an absence of other means of segregation and grouping is customary, does an understanding of the linguistic relationships become indispensable.

Thirty years ago the number of distinct linguistic stocks in California was pretty accurately given as about twenty, and Powell's great systematizing work fifteen years later determined the number as only slightly larger. Since then no entirely new languages have been discovered. We may therefore say with certainty that the number of native linguistic families will never be regarded as greater than it is now. On the other hand, recent studies show very little tendency to reduce the total number of stocks. The Shasta and Achomawi have been found related, but this affinity had been at least suggested many years before. That here and there languages, such as Pomo and Chimariko, have certain important words in common with others, such as Shasta, or with one another, is not necessarily an indication of relationship. It seems that almost every stock in California has at least a few words in common with neighboring or more distant languages, but that such words represent a borrowing or diffusion. This is established not only by the small number of such words, but also by the fact that they are frequently common to more than two languages. It would seem as if words of certain significances had been particularly liable in California to spread as loan words to unrelated languages. Even if some further unifications of languages now considered distinct should in future be made by the students of California linguistics, there is no reason to suppose that such a reduction in the number of stocks will be proportionately greater than elsewhere in the North American continent. It is only necessary to recall that a number of conservative scholars believe, or have proclaimed, the relationship of Natchez with Muskogi, of Selish with Kwakiutl, of Sahaptin with one or more of the neighboring languages, of Seri with Yuman, of Shoshonean with Piman and Nahuatl, to become convinced that any analogous conclusions which may be reached in California will not be special, but will form part of a general reduction in the number of distinct linguistic branches, which is almost certain to take place as knowledge gradually increases.

As regards the minor divisions of language, system has pretty well replaced chaos in California. It can not be pretended that all the dialects are even tolerably well known, but at least the number of dialects has been definitely determined in all regions where the practical extinction of the Indians has not made such a determination almost impossible. We know not only the total number of divisions of each linguistic family at the time of first contact with the whites, but also something of the relative degree of divergence of these divisions. The loose statements formerly sometimes made that the number of unrelated dialects of one stock was often very great, and that these dialects showed a gradual continuous change from one end of the territory of a family to the other, have been found to be entirely erroneous. In most cases the divisions of each family are few

in number—with two or three exceptions never above six or eight—and they are usually well marked. Over a certain area the speech is identical or practically uniform. In leaving this area for an adjacent one, an abrupt change to another form of speech is encountered, which in turn is uniform over its entire extent. In many cases the changes met in passing from one of two adjoining areas to the other are so great that it would perhaps be more correct to designate their forms of speech as related languages than as dialects. A number of the smaller families are monodialectic. The total number of distinct languages or dialects in the state, excepting those whose divergence is comparatively inconsequential, was not over a hundred, and more probably about seventy-five. The total of distinguishable forms of speech may have numbered twice this.

Structurally the languages of California are usually characterized by a certain simplicity or transparency. As has been pointed out, there are, however, two regions, one in the northwest and one in the southwest, where this morphological quality is lost, and in which certain other qualities seem to be common to the several languages of the area. It has therefore been possible for some years to distinguish a northwestern, a southwestern, and a large central morphological group of languages. The most recent investigations confirm this classification; but it is necessary not to endow the grouping with too much significance. As each language is studied individually, and becomes more thoroughly known, it is obvious that it must prove to possess certain peculiarities that separate it from all others, even of the same morphological type; and from the standpoint of any given language such peculiarities are of course of more importance, and of greater value to the student, than the more vague similarities to the type, which it is plain can be based only on a few characteristics of either an essentially external nature or of the most general kind. The existence of the morphological groups is evident, but it must also be clear that they are only morphological groups of languages that are unrelated, and that therefore the bare circumstance that a certain language forms part of a particular group, furnishes no understanding, of that language, that is more than skin deep.

As to the significance of the morphological groups, it is clear that the lesson to be drawn from their determination is not a belief in the ultimate relationship of the languages constituting a group, but the emphasizing, by fresh examples, of the principle of territorial continuity of characteristics. This is not the occasion to discuss the much debated question of whether vocabulary or structure is the more reliable criterion of linguistic relationship. However this question be answered, the similarities as yet found between the languages of the three California groups are not of such a nature as to be of bearing on the consideration of their genetic unity. The importance of a proper conception of the frequency and influence of territorial continuity of characteristics is still too little recognized, especially among linguists, though instances of its occurrence are numberless. No one impressed with the prevalence of this historic principle would, for instance, dare to affirm, as eminent men have done, the relationship of the languages of southeastern Asia because they are isolating, or of Japanese with Ural-Altaic merely because both use suffixes in abundance.

The probable cause of the multiplicity of linguistic stocks in California may be said to be becoming a little clearer. The division of many of the stocks into sharply distinct dialects or languages indicates how many of them may have originated by a

mere process of divergence, continued until practically all traces of original relationship have now become obliterated. While, as has been said, there seems at present no great prospect that we shall ever obtain conclusive evidence as to such original unity of linguistic stocks now apparently unrelated, it is clear that if the processes which have more recently been at work dividing original stocks into distinct languages, have been operative in this region for a considerably longer period, as is only natural, there must have been some such result as the gradual formation of what we now call distinct families. In any case nothing has ever been discovered that supports the so-called fish-trap theory, according to which the multiplicity of languages in California is due to the successive crowding, into this more desirable habitat, of waves or bands of unrelated immigrants from less favorable territories, to which none of them were ever willing to return. While this theory is at once simple and plausible, it has never been anything else than purely hypothetical.

It is still sometimes thought that areas of diverse native languages can be pretty closely correlated in California with areas that are physiographically distinct. Nothing is more erroneous. True, as there are so many forms of speech, the great majority of them can extend only over a small territory, and it is only natural that a small territory should often be confined entirely to a certain physiographical area. But there are numerous instances where not only linguistic families, but even dialects, run counter to all natural boundaries. The Shoshoneans and Washo have both spilled over the high crest of the Sierra Nevada. The Pomo west of the main Coast Range have an offshoot in the Sacramento valley, and the Wintun of this valley occupy territory west of the Coast Range. The Yurok are in part an ocean people, like their neighbors the Wiyot, and in part a river people on the same stream as their neighbors the Karok. Shoshonean people lived in the timbered Sierra, in the Great Basin drainage, the hot deserts of the interior of southern California, the fertile parts of the coast region of southern California, and shared the Santa Barbara islands with the Chumash. The southern Maidu dialect was spoken in the Sacramento valley plains, in the foothills, and in the high Sierra. The northern and central Pomo dialects were each spoken on the immediate coast, in the open Russian river valley, and in the intervening heavily timbered mountainous redwood belt. In certain instances where languages or dialects correspond to physiographic areas, these physiographic areas lack any separating barrier. Thus among the Yokuts and Miwok the dialects of the level plain of the San Joaquin valley are with scarcely an exception quite sharply distinct from the dialects of the adjacent foothill country of the Sierra; and yet the change from plain to hills is so gradual in some parts as to be scarcely visible. It is clear that in such cases the direct cause of the difference of speech is not the environment itself, but a difference in association and mode of life dependent upon physical geography. In fact it is even going too far to name these dialectic divergences as effects and other factors as causes; we are really only justified in saying that the differentiation of speech seems to be causally related with other factors, and that these are immediately cultural and historical, and only indirectly physical and environmental.

Much the same is true of the demonstrable relations of culture and environment. There are instances of the effect of environment on culture in parts of California, which could not well be more vivid; and yet these same instances show also the

narrow limits which are imposed upon environmental effect by culture and history. On Tulare lake, in the southern part of the great interior valley of California, live the Tachi and Yokuts tribes. On Clear Lake, in the northern Coast Range, are the eastern and southeastern Pomo. On the Klamath and adjacent lakes, in northeastern California and in Oregon, are the Klamath Lake and Modoc people. All three groups of people have developed certain aspects of their material culture in a very similar direction through the use of a material furnished by their lake environment, the tule or bulrush. Not only houses, mats and boats, but clothing, footwear, cradles, baskets and games are made of this abundant and useful material. A glance at a museum collection from the three regions not only seems to reveal a practical identity of culture, but would make it appear that the eastern Pomo and Tachi Yokuts were culturally more nearly akin to each other than to their respective Pomo and Yokuts neighbors and kinsmen. But the moment the social and religious institutions of these people are considered, the resemblances in industries and arts are counterbalanced and as it were nullified. In ceremonies and habits and customs the eastern Pomo are as distinctively Pomo as any other branch of the family; and so the Tachi are as good Yokuts in religion, in beliefs and in social organization, as they are in language. Even on the material side of life environment is not the only causal factor. The Modoc twines his tule basket, the Tachi coils it, because those are the characteristic textile processes of the culture region in which each lives.

Of course even social life and religion will be colored by environment, and their development can extend only within a certain compass given by environment. But this is self-evident. No one, whether anthropologist or historian, has denied the significance of physical nature as a cultural condition; but the attempt has too often been made, sometimes expressly, more frequently by implication, to derive and explain a culture entirely from geography and climate; and nothing is more unfounded. For the sake of argument it may be granted to those who so wish, that in the ultimate analysis everything historical and everything human is the effect of physical nature. But, on the other hand, too strong a protest can not be made against the assumption which is often unwarrantably and illogically made from this view, that the actual immediate specific causes which have shaped the life of any given people can be sought and found in their particular environment. A body of people, neither at present nor at any time in their history, are ever a clean fresh slate ready to be inscribed by nature. No matter how rude their civilization, it has always a long historical background and is deeply rooted; and it is only upon this complex institutional life that a particular environment can begin to act. In time, no doubt, environment will partially modify all the institutions with which it is brought in contact. But institutions have a life of their own, influence each other, and undergo their own developments and histories. They must be always affected but can never be controlled by nature. Change of environment can destroy an institution by making it unnecessary or impossible, or can be the stimulus which develops a new institution; but in either case something cultural, an existing body of institutions, is present and is acted upon by the stimulus; and this body of culture is in turn dependent upon previous factors that are both cultural and environmental. To look to physical environment for the explanation of cultures is to mistake condition for cause.

The three regions of generally distinct

culture which have been recognized in California seems to be substantiated by further researches. Of course any culture-area or ethnographical province is relative. It rarely has sharply limited boundaries. To hold that what is important about it are not its external limits, but its internal center of dispersion, is good doctrine, but impracticable, in most cases, owing to lack of historical material. Thus, as compared with the rest of America, California seems a well-marked and well-defined province. In a broader view of the peoples of the world, its distinctive characters largely disappear, or are seen to coincide with such as are typical of the whole of America. On the other hand, when California is viewed by itself, the northwestern, the central and the southern areas contrast strongly. But the moment each of these three is considered alone, culturally well-defined groups of tribes are evident within it. This does not weaken the value of the recognition of culture-areas. The genus breaks up when we consider species. Even the species seems no longer a unit when attention is allowed to be given to races. But the differences between genera become insignificant when the family and the order are in view. Neither the order nor the species, the race nor the genus, is, therefore, unimportant or unreliable. A biology recognizing only species is a scientific impossibility; but a biology dealing with nothing lower than genera would be equally impossible. The culture-area, broad or minute, has its value, and in fact is indispensable, as a means to a historical understanding of its components; but it has value only so long as its relativity is recognized.

The northwestern culture-area of California may in some respects be considered the most southerly extension of the distinctive and rather highly organized culture which centers on the Pacific Coast north of Puget Sound. The Yurok and Hupa and Wiyot house is the same in plan as the plank house as far north as Alaska. Immediately to the south, among the Yuki, Wintun, and southern Athabascans, it is replaced by the central Californian brush or bark hut or earth-covered house. The same tribes of northwestern California are the most southerly among whom a well worked-out system of social organization dependent on wealth exists. All through California the rich man was the chief; but only here was every one's standing in the community, and the value of his life and of his children, definitely regulated and expressed in terms of wealth. In this northwestern region, too, is marked the southernmost extension on the Pacific coast of the prevalence of culture-hero and transformer myths. Immediately to the south, creation myths begin. Nevertheless we may well hesitate before counting northwestern California within the North Pacific coast culture. In general scope and tone, life was at least as similar to that of central California as to that on the lower Columbia or in the vicinity of Puget Sound. In addition, there has clearly taken place in this region an independent local development which has more or less influenced the entire culture. The implements, the ceremonies, the beliefs, found only in this region, are exceedingly numerous, and seem to reach the highest development among the Yurok, the Karok, and the Hupa. The remaining Athabascans, the Wiyot, the Shasta, and the Chimariko, who surround these three more highly organized tribes, belong to the same general culture while lacking many of its most individual features.

In southern California, at least three sub-areas of culture, connected largely with environment, are distinguishable. Unfortunately, the people of what was perhaps the most interesting of these, the

Santa Barbara coast and archipelago, were ethnologically extinct long before ethnologists visited their territory. We know of them only from brief notices of travelers and through the less perishable artifacts they have left in their village-sites. As a more or less maritime people, their mode of life must have been quite different from that of the other Indians of southern California, and no doubt their institutions and beliefs also showed much that was peculiar but which we can not even speculate upon.

The people in the fertile and semi-fertile mountain and coast regions of southern California were the most similar, of those in the south, to the central and northern Californians. Their habitat was not essentially different from the greater part of California. Their mode of life is, therefore, naturally also similar to that of central California. In religion, however, especially in the matter of beliefs, there is much that is either distinctive or shows relations with the Pueblo culture. Even the arts are not free from resemblances in this direction.

It is therefore the more surprising that the agricultural Yuman tribes of the Colorado river, to the east of the last group of people, and therefore so much nearer the Pueblo region, evidence no great approximation to Pueblo or southwestern life, even though they are in many respects typically un-Californian. Even such of their cultural features as they appear to have acquired through Pueblo influence, as, for instance, their pottery, have a non-Pueblo character. Their religious life is especially distinct, lacking even certain traits which their Californian neighbors to the west share with the Pueblos and other tribes to the east. In the ceremonies of the Mohave are found no masks, no altars, no painting or carving of ceremonial paraphernalia, the simplest of regalia, no seasonal observances, no societies, and no initiation; and all this in spite of the fact that they maintained some degree of intercourse with the Hopi.

In the great central region of California cultural uniformity is stronger than in the south, not so much through the persistence of certain special positive features, as in a fundamental similarity that is varied only locally. Thus the weaves, the shapes, the patterns and the materials of baskets differ, but basketry is everywhere the most developed and most important art, nowhere replaced by pottery or working in wood. Creation myths and mourning ceremonies vary in form from district to district, but everywhere dominate mythology and public religious expression. Too great a uniformity will not be expected when it is realized how limited the geographical knowledge and intercourse of most of the California Indians were. It is probable that the southern Yokuts did not more than know of the existence of the southern Miwok. These in turn knew no more of the southern Maidu. The southern Maidu may not have been aware that there was such a people as the Shastan Achomawi of Pit River. Again, the Maidu of the higher Sierra did not know more than the easternmost Wintun. These appear to have come in contact only with the easternmost Pomo. The eastern Pomo had but little to do with their western kinsmen on the coast. Whether one traveled from south to north, or from east to west, through the central province of the state, he would, therefore, encounter, in aboriginal times, at least two or three groups of people mutually ignorant of each other's existence; and this condition was probably more marked in north-central than in south-central California. In this respect central California differed as a culture-area from such much more extensive but better interconnected regions as the Plains, or the district of the Great Lakes and

Alleghanies; or probably even the north Pacific coast and the southwest, where at least the majority of tribes had some communication with the majority of others. With the restricted intercourse in central California, common cultural traits should be chiefly general, or of a negative character, and local divergences numerous. The degree of uniformity which exists is, therefore, the more significant.

From the first, archeological investigation in California has concerned itself with questions of time more than with those of culture. It was inevitable that this should be so from the sensational if as yet unsubstantiated discoveries of a generation ago. Of recent years there has been rigorous search for evidences of the geological antiquity of man, and positive results from which would have been the more reliable from the fact that the work has been controlled by geologists. It can not be said, however, that more has yet been shown than that there are good prospects for the ultimate establishment of the existence of man in the state at an early period. But a clue is not a discovery, and probability and opinions represent precisely the status of the question which it is desirable to leave behind. Of recent years no one has ventured to assert positively the human origin of the possible artifacts dating with certainty from Quaternary time, or the geological antiquity of finds of unquestionably human origin. Until such an unequivocal statement of faith is made by those most inclined to a favorable opinion, the skeptically disposed will doubt. The work that has been done is encouraging; but proof of the geological antiquity of man in California remains to be made.

Rather unexpectedly, investigation of shell mounds and deposits on San Francisco Bay has resulted in evidences of antiquity sufficiently great to be geologically observable. In a number of mounds on the immediate shore-line the base has been found to be from three to twelve feet below the present water level. On the other hand, there is at least one case of an extensive shell deposit at a point more than a mile from water and at some elevation above sea level, the presence of which it is difficult to explain except on the assumption that the shore-line has undergone a corresponding elevation. Of course the question at once arises how great a time would be required to effect such changes in a region subject to seismic disturbances.

On its cultural side archeology seems to show above everything else that, broadly speaking, the civilization of California is of some age, and has scarcely changed during the period, perhaps of thousands of years, through which the accumulating finds take us. There is no trace of pottery in former times where it has not been found in the historic period. There are no evidences of agriculture or of architecture in stone. The plummet-shaped charmstones are found chiefly in regions where their use by the Indians has been seen, or explanations as to their employment have been had from the Indians. The straight tubular pipe is as characteristic of the prehistoric as of the present native inhabitant of the state. The peculiar hooked stone adze handle, the large obsidian blade, the perforated stone, the pestle ringed near the bottom, are found buried in village-sites, and in use by the Indians of to-day, in northwestern California. The more specialized of these forms, such as the adze and pestle, are observed by both archeologist and ethnologist only in this region. It would thus appear that even local cultural characteristics are of considerable age. Scarcely any unexplained types of implements, and no forms of art unpractised at the present day, are found by the archeologist. Even where minor changes have taken place, they are superficial. The bowl-

shaped stone mortar is the commonest archeological find in California. The great majority of the tribes met by the whites did not use such mortars, but a flat slab, or exposed bed-rock, with a mortar or hopper of basketry. Both the prehistoric and the recent people, however, it is clear, lived principally on vegetable food that needed pounding, no doubt acorns above all; and they used the same types of pestles.

Such a close correspondence of the results obtained by the prehistoric archeologist and by the ethnologist investigating present-day conditions, is not a new phenomenon nor confined to California. It recurs in the southwest, on the north Pacific coast, on the plains, to a considerable extent in Mexico, in fact, broadly speaking, over the whole of North America except part of the region between the Mississippi and the Alleghanies. The widespreadness of the correspondence, however, makes it particularly interesting and important, as it seems to show either that all American culture is comparatively recent, or that its principal forms, differentiated a long time ago, have been maintained by a strong conservatism.

The physical anthropology of California is yet in its infancy, but whether it will ever far outgrow this stage seems doubtful. Over great parts of the state prehistoric material for investigation is wanting, owing to the prevalence of the custom of cremation of the dead. In other parts the recent people have become extinct without being measured or photographed. In some regions, such as the Salinas valley, there is neither recent nor ancient material. The map of California will, therefore, presumably always contain large blanks so far as physical anthropology is concerned. At present studies are further restricted through the comparative scarcity of information in most of the surrounding parts. No general correspondences of racial types with cultural or linguistic divisions have been established. In fact, the observed instances more frequently show a lack of correlation. There does not appear to have been any very considerable physical diversification within the limits of the state. Whether a few scattered areas showing aberrant types, such as the long-headed people of the upper waters of Eel River and of the southern Santa Barbara islands, are to be regarded as ethnic islands in which an earlier continuous but now otherwise submerged race has maintained itself to the present in comparative purity; or whether they represent migrations of distinct types from a more remote habitat; or whether they are local developments from a single widely spread and originally uniform type, must yet be considered uncertain.

It may be asked what are the specific problems of the anthropology of California. The most important questions have been outlined in the summary of results that has been given. While something has been done, and some problems have been solved or brought nearer solution, they have only served, as is always the case, to open wider problems. If it has been determined that dialects do not form gradual transitions, but present abrupt changes, a point is gained. But the question at once arises what the conditions are that have brought about and maintained this state. While the structure of some languages is fairly well known, generally through the study of one selected dialect, there are more of which we have only the most superficial conception. If these less-known languages show resemblances among each other, or to the better-known languages, either in content or in form, we need more information than exists in order to follow out the promising comparisons. If half a dozen shell-mounds on San Francisco Bay show varying subsidences below sea level, there

are three hundred others, on the shores of the same body of water, whose subsidence should be similarly investigated to make possible a final determination of the age of the culture of this region; and this is only one region of many where similar archeological phenomena can be studied. The cry of the physical anthropologist is for more material—material which is in part no longer obtainable. The ethnologist is beset by the same difficulty. There is not a people in the state whose institutions and religion have been ascertained with such exhaustiveness as is desirable for purposes of comparisons alone. We know that the Maidu and Wintun had certain ceremonies in common. It now appears that other groups, such as the Pomo and Miwok, also practised certain of these ceremonies. We have some idea of the form which these ceremonies took among the Maidu, with whom they do not seem to have been original; but we lack almost all knowledge regarding them among other tribes—and this is knowledge which can still be secured. There is no doubt that something of the history of the aborigines of California, in broad outlines, but in the specific sense of the word history, will be revealed by the continued pursuit of the various phases of anthropology; but what is needed in all domains of the anthropology of the region is more knowledge, more information, and more facts. However gratifying the results of research have so far been, they show only more clearly the greater results that are possible, and emphasize the means by which alone these results can be attained, which is: more work.

A. L. Kroeber

The American Chemical Society and Section C of the American Association for the Advancement of Science

The thirty-seventh general meeting of the American Chemical Society and the meeting of Section C of the American Association for the Advancement of Science was held at Chicago during Tuesday, Wednesday, Thursday and Friday, December 31 to January 3, in the Kent Chemical Laboratories of Chicago University.

Tuesday morning the organization of Section C was effected and this was followed immediately by the opening session of the American Chemical Society and later by the meetings of the sections.

On Tuesday evening a complimentary smoker was extended to the visiting chemists by the Chicago section of the American Chemical Society at the Sherman House. The cordiality and good cheer of the occasion were so much in evidence that this session extended well over into the new year.

Wednesday afternoon personally conducted excursions were made to the Illinois Steel Company, the By-products Coke Corporation, the American Linseed Company and the Chicago Gas light and Coke Company.

In the evening the society was favored by an address on "American Chemical Societies" by Professor M. T. Bogert, president of the society.

Thursday evening the members of the society banqueted at the Auditorium Annex Hotel. This was one of the most enjoyable events of the thirty-seventh general meeting.

On Friday afternoon excursions were conducted through the plants of the Standard Oil Company at Whiting, Indiana, and to the Union Stock Yards and the packing plant of Swift & Company. A complimentary luncheon was served for the visitors by Swift & Company.

At the last general meeting, on Friday, the society extended a vote of thanks to the Chicago section and all others who contributed so much for the success of the meeting in Chicago.